

A FEW THOUGHTS ON AN ASPECT OF THE DISPERSAL PROBLEM

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Mr. A. J. Showler (*antea*: 199-200) raises a fascinating and baffling question: how does a butterfly – or, in principle, any insect – in the case of a species of relatively sedentary habits and restricted or specialised habitat, expand its range from time to time into previously uncolonized areas, often over quite long distances? I do not know the answer; but as Mr. Showler invites suggestions, here is one line of approach that appears to me plausible.

I think I am right in saying that we know, or at any rate strongly suspect, that the large migrations which take place at irregular intervals are the response to an environmental pressure – a build-up of population putting a strain on the equilibrium or balance of biological forces within that population. The most obvious factors will include overcrowding and food-shortage causing ultimately acute competition-pressure, weakening of the stock, perhaps disease, etc. Here the causal factors are fairly clear and apparent response to them a natural and 'logical' one, even if the exact mechanism by which it occurs is obscure or conjectural.

But now suppose that essentially similar responses are capable of being initiated by *other* unfavourable stimuli, besides those provided by overcrowding and its attendant ills. It may even be that *any* such produces, within a few generations, a corresponding degree of restlessness on the part of at least the gravid females, or a proportion of them – a tendency, weaker or stronger depending on the power of the stimulus, to wander (far if necessary) in search of "fresh woods and pastures new". One envisages the stress or stresses as in some way directly acting on the genetic material – a Lamarckian thesis, doubtless, but there are many instances in which something of the sort is now believed to occur. The stressful stimuli would, on this view, include such things as a severe reduction in living-space, and with it, of the foodplant; changes in the local microclimate, slight pollution, etc. It is not hard to imagine how such stresses might develop – all too easy, in fact! When they do so too rapidly, the colony is of course unable to develop the appropriate responses in time.

Something very similar is thought to happen periodically with certain species of beetle which are normally flightless (often with aborted or useless wings). From time to time, either odd individuals or groups develop functional wings – an apparent adaptive means to enable the species to disperse and effect re-colonization whenever this becomes requisite for survival.

The cases of expansion of range over wide fronts seem somewhat different, for there it should rather be a matter of accumulation of factors *favourable* to the species with

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consequent access of vigour and dispersive power. The end result is not dissimilar but of course on a greatly magnified scale.

RE-APPEARANCE OF THE EMPEROR MOTH IN EPPING FOREST.

— An Emperor Moth (*Saturnia pavonia* L.), the first in Epping Forest this century, was recorded at Epping Forest Conservation Centre (TQ 413981) on 8th May 1981. The specimen is a female, in perfect condition and once captured it proceeded to lay 24 eggs which are now being reared. de Worms (*Lond. Nat.*, 1953: 129) described the Emperor as fairly numerous on the outskirts of London, but refers to the *Victoria County of Essex* (1903) as the last record for Epping Forest. Emmet (1979, *The Lepidoptera — a historical perspective*, in Corke, D., edit., *The Wildlife of Epping Forest*) carried out a review of the literature concerning the moths of Epping Forest and found no records at all of the Emperor Moth between 1950 and 1977, and also stated that 'it is surprising that the Emperor has not been recorded lately because it is not uncommon elsewhere in the county'.

On checking with the Biological Records Centre at Monks Wood, it appears that although the moth has been recorded in areas surrounding the Forest (Chigwell in 1964-67, Roydon in 1968), in the last 10 years, there are no such records for Epping Forest itself. Apparently therefore, I have to report the first Epping Forest record of the Emperor Moth since 1903.

The insect was caught in a Robinson MV trap (125 W) which has been used to record moths in the Epping Forest Conservation Centre grounds for the last six years, the results of which survey are soon to be published. The light trap is set up on a mound surrounded by willow and Scots pine. The grounds themselves contain approximately two acres of rough grassland, a pond, and gardens, within a border of lime trees interspersed with silver birch. Epping Forest Conservation Centre is well situated in the middle of Epping Forest, the surrounding forest consisting mainly of pollarded beech trees and small areas of open heath. — Miss L. PALFRAMAN, Epping Forest Conservation Centre, High Beech Loughton, Essex.

LARVAL HABITS OF *CARCINA QUERCANA* FABR. — I was interested in the Note by H. N. Michaelis (in *Ent. Rec.*, 93: 61) on this species that it might possibly overwinter as a larva, and in which he states that he had found larvae on *Hypericum hidcote* in March.

For three years now, I have bred this moth from spinnings collected from a species of garden *Pyrracantha*, in Eastbourne. The larvae in their silken spinnings occur on the underside, or in very rare instances, on the topside of the leaves feeding on new growth as it sprouts in the spring. The larvae have been collected from January to May in most years. I have never looked earlier as the larvae are very small in the early months. As *Pyrracantha* is a species of so-called 'semi-evergreen', I would think it quite likely that the species could overwinter as a larva, at least in the south. — M. HADLEY, Nature Conservancy Council, 19-20, Belgrave Square, London SW1X 8PY.